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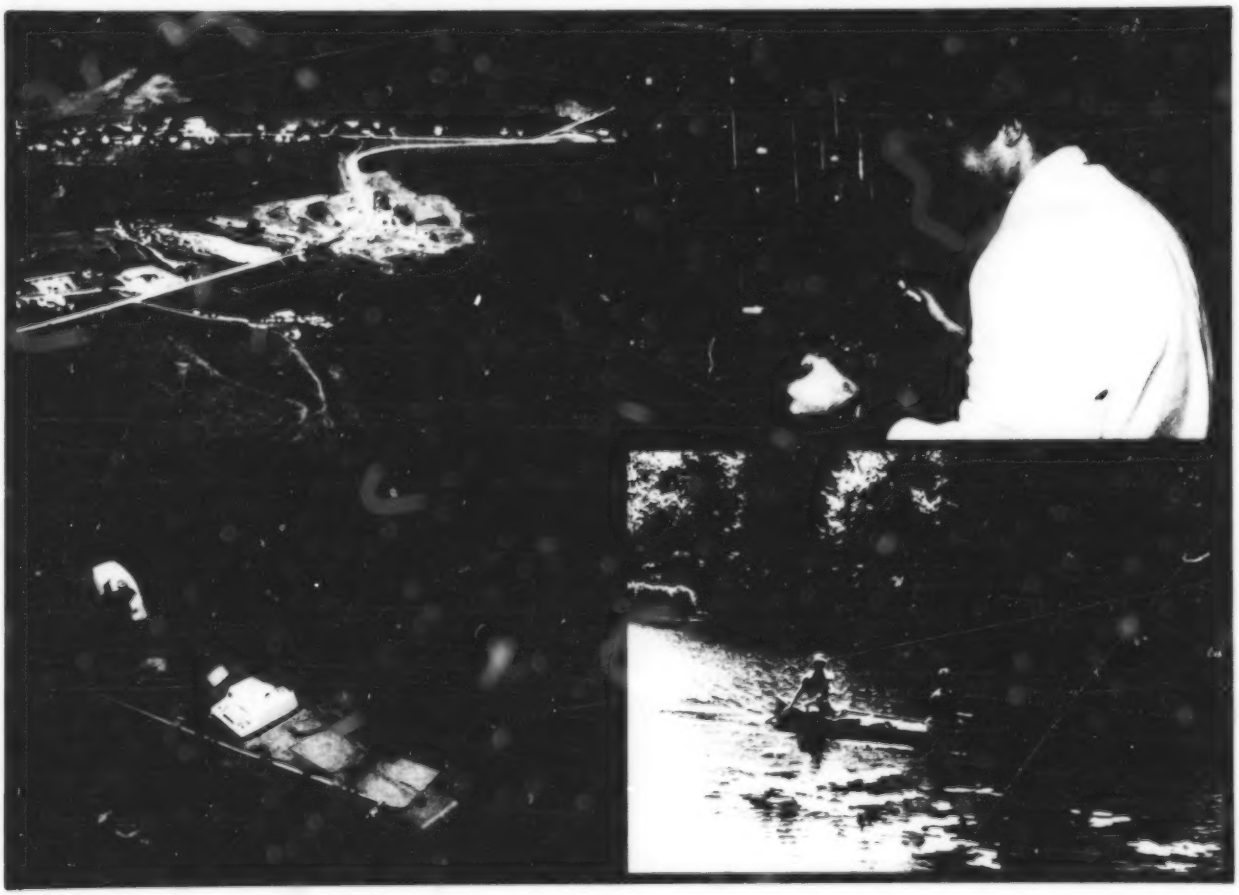
AN ASSESSMENT OF THE 1989 USER/CLIENT SURVEY

NOVA SCOTIA, CANADA

IWD-AR-WRB-90-159



Canada

INLAND WATERS DIRECTORATE
ATLANTIC REGION
WATER RESOURCES BRANCH
DARTMOUTH, NOVA SCOTIA

AN ASSESSMENT OF THE 1989 USER/CLIENT SURVEY

NOVA SCOTIA, CANADA

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Prepared by: R.A. POL

Hydrology Division
Water Resources Branch
Inland Waters
Conservation and Protection
Environment Canada
Dartmouth, Nova Scotia

January, 1990

Think Recycling!

ABSTRACT

The purpose of this report is to summarize a user/client survey conducted by the Hydrology Section of the Water Resources Branch, Atlantic, in the province of Nova Scotia. The intent of the survey is to provide information to the water quantity data monitoring network managers so they may better evaluate the needs of hydrometric data users and potential clients.

The report presents the major findings of the user/client survey and makes certain recommendations based on the results obtained.

ACKNOWLEDGEMENTS

The design, distribution and compilation of the questionnaire information were performed by Water Resources Branch university student employee Tracey Jones during the summer of 1989. Thanks are expressed to other staff members of Environment Canada for providing assistance in various aspects of this project, to Herb Doane of the Nova Scotia Department of the Environment and to the Nova Scotia Department of Lands and Forests for providing us their respective mailing lists. Thanks are also expressed to those who completed the questionnaire and thereby enabled the completion of this study.

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USER/CLIENT SURVEY

I INTRODUCTION

As a result of the Water Resources Branch's on-going need to promote its product (water quantity information) and to identify other potential clients, a user/client survey was initiated and completed in 1989. The pilot project would cover user/clients in the province of Nova Scotia. The survey was to include identified users of hydrometric information and also potential clients. The idea was to better inform the clients of the products that are available to them through the Water Resources Branch, and to hopefully encourage the use of hydrometric data by as many clients as possible.

II OBJECTIVE

The main purpose of this project is to answer two basic questions: (1) who are the users and potential users of the Water Resources Branch's data; (2) are these users and potential clients aware of the various types of data available to them including the interpretive information also produced. A secondary aim of the project is to inform the users through follow-up contact of the water information available to them.

This report will summarize the findings of the user/client survey project conducted by the Hydrology Section of the Water Resources Branch, Atlantic, in the province of Nova Scotia. The information thus extracted from the survey questionnaire can then be used to evaluate the needs of hydrometric data users and potential clients. The information gathered can also be used to identify ways of meeting the client needs.

III METHODOLOGY

The user survey was initiated in early May 1989. A questionnaire (copy provided in Appendix A) was mailed to 184 user/clients in early August 1989. The questionnaire and mailing list were compiled by a summer student. The mailing list was based on mailing lists provided by the Nova Scotia Department of the Environment; Water Resources Branch, Ottawa; Conservation and Protection Communications Service, Atlantic; and the Nova Scotia Department of Lands and Forests. The complete list was entered on a word processor with mail-merge capability.

The mailing list included names from the following categories:

1) Government (federal, provincial, municipal),

2) Engineering and consultant firms,

3) Universities and educational institutions,

5) Other (forestry companies, wildlife organizations, etc.).

The survey questionnaire was developed from other user survey projects initiated by the Inland Waters Directorate, either under contract or in-house.

The project was conducted via the following avenues:

1) Contacting clients through a questionnaire survey,

2) Contacting clients as a result of the questionnaire survey via telephone,

3) Contacting clients as a result of telephone survey via personal visits.

IV RESULTS

The total number of questionnaires sent was 184; the total number of responses received was 80. This represents a 43% return rate which compares well with other surveys of this type. Table 1 presents the number of questionnaires sent and responses received by the various categories.

TABLE 1

Questionnaires Sent and Responses Received by Category

Category	Sent	Received	% Received
Federal	40	17	43
Provincial	10	5	50
Municipal	73	30	41
Consultant	38	18	47
Universities	10	4	40
Other	13	6	46
TOTAL	**184**	**80**	

Appendix B presents the questionnaire responses relating to the respondent's use for surface water information, their need for water data and their willingness to pay a fee for it. As can be seen from Appendix B, most of the respondents from the various categories use surface water information and are willing to pay a fee for this data. The willingness to pay a user fee by such a high proportion of the respondents (66%) should be considered when developing future cost recovery fee guidelines for interpretive services or for special field surveys.

The following section presents a summary of the responses to the pertinent questions asked in the questionnaire.

Question 5: Water Related Activity

Question 5 of the questionnaire lists 30 water related activities and concerns and asked the organizations surveyed that they indicate which of these related to them. Table 2 presents the water related activity(s) that each of the various clients is mainly responsible for. Table 2 is organized by the number of positive responses received for each activity and by percentage. The activities are ranked in descending order. The highest ranked water related activity is water quality monitoring; the first six activities rank so high mainly because of municipal government concerns. The next activity, environmental assessment, is primarily a federal government concern but the provincial government and consultant organizations also ranked environmental assessment high on their list of activities. Table 3 summarizes some of the higher ranked water related activities and concerns by category.

Question 6: Requirements for Surface Water Quantity Data

Most of the respondents require surface water quantity data of some type. Eight-five percent of the respondents use raw hydrometric data and over 70% of the users wish interpreted information or both.

Question 7: Frequency of Data Requirements

Most of the organizations that responded to the questionnaire use surface water data (of some type) frequently with the only exception being the municipalities. The municipalities need water quantity data but rarely use it or even know it exists. Most of their work needing hydrometric data is contracted out to consultants.

Question 8: Types of Surface Quantity Water Data Required

Figure 1 shows the types of quantity water data which users required. A variety of types is desired, with the vast majority calling for streamflow (discharge and runoff), water levels and sediment information. Water level data are required to the same degree as discharge data; 27% of the total requirement for data is equally distributed between water levels and discharge. Suspended sediment data requirement was 18%. These figures are not reflected in the number of annual information requests received. The average number of annual data requests over the last three fiscal years, starting in 1985-86 fiscal, is 79 for daily discharge, 15 requests for daily water levels and 2 requests for daily sediment data. The station coverage of water levels and sediment stations is limited in Nova Scotia. The perceived need for this information suggests that station coverage does not meet the needs of the user requirements for this data. In other words, they need levels and sediment data but it does not exist where they want it.

TABLE 2

USER/CLIENT WATER RELATED ACTIVITY
From Question 5 of the Questionnaire
in Order of Importance

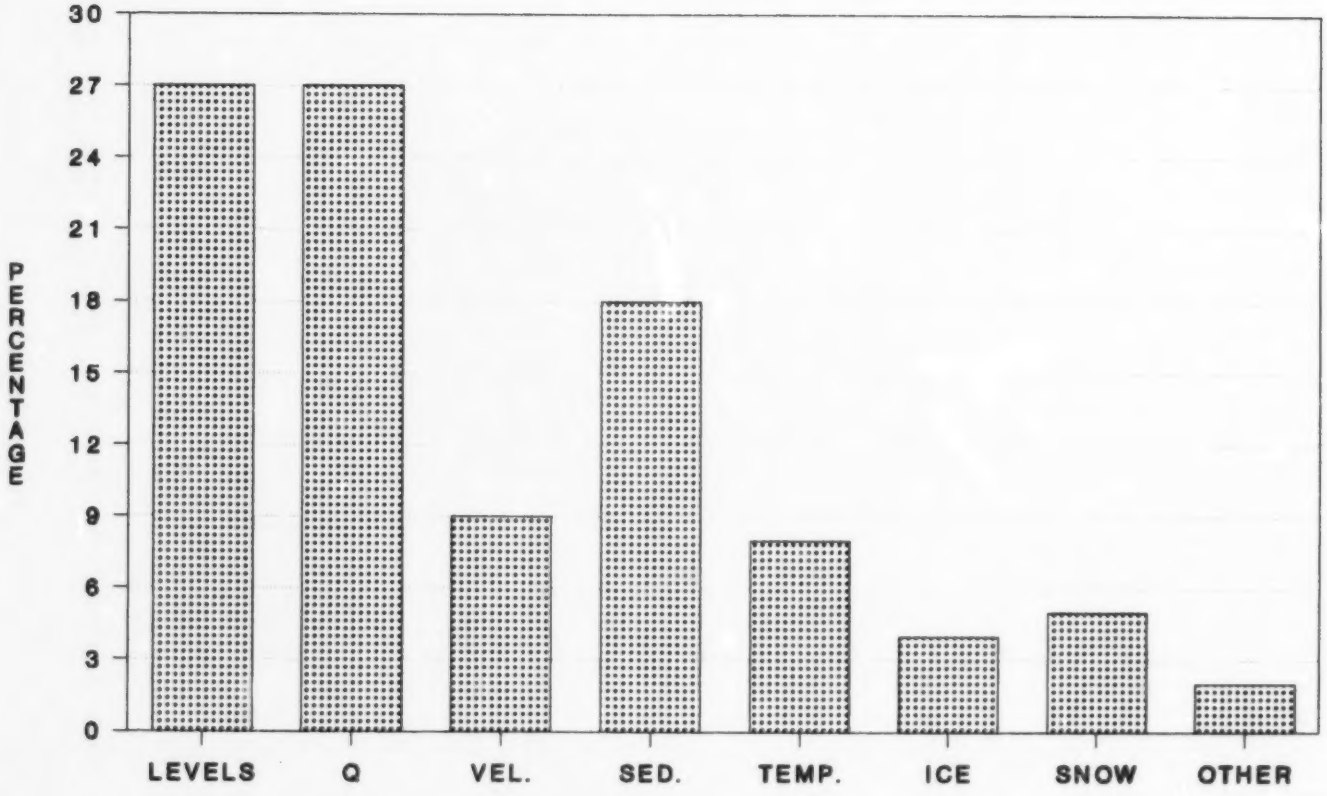
Activity	No. of Responses	Percent (%)
Water quality monitoring	42	52
Water supply and distribution	40	50
Water quantity monitoring	36	45
Water supply withdravals	34	42
Waste disposal	34	42
Regional/municipal planning	30	38
Environmental assessment	30	38
Stream alteration	25	31
Groundwater protection	23	29
Public health	23	29
Hydrogeological information	19	24
Investigative studies/modelling	18	22
Fire	16	20
Hydraulic structures	16	20
Fisheries	15	19
Research	13	16
Lowflow augmentation	13	16
Flood forecasting and management	12	15
Recreation	11	14
Education	10	12
Manufacturing	8	10
Wildlife management	8	10
Hydropover	6	8
Forest management	6	8
Mining	6	8
Transportation/navigation	6	8
Other energy development	5	6
Hydraulic impact	5	6
Agriculture	4	5
Other (env. protection)	2	2

TABLE 3

Some of the Higher Ranked Water Related Activities/Concerns by Category From Question 5 of the Questionnaire in Order of Importance

Category	Activity/Concern
Federal	Environmental assessment
	Water quality monitoring
	Research
	Fisheries
	Investigative studies/modelling
Provincial	Water quality monitoring
	Water supply withdravals
	Research
	Water quantity monitoring
	Environmental assessment
	Stream alterations
	Waste disposal
Municipal	Water supply and distribution
	Water quality monitoring
	Water supply withdravals
	Regional/municipal planning
	Water quantity monitoring
Consultant	Water supply and distribution
	Waste disposal
	Regional/municipal planning
	Water supply withdravals
	Hydrogeological information
	Environmental assessment
	Stream alterations
	Hydraulic structures
Universities	Education
	Investigative studies/modelling
Other	Wildlife management
	Water quantity monitoring

FIGURE 1
TYPES OF SURFACE WATER QUANTITY DATA REQUIRED



Questions 9 and 10:

Due to the nature of these two questions, one dealing with water quality and the other strictly for information purposes, they will not be dealt with in this report.

Question 11: Avareness and Use of Water Data Outputs

The avareness and use of water data outputs is shown in Figure 2. Many users are avare of all the published outputs. Usage is quite different, however, with only a limited number of respondents using most of the publications. A significant number of respondents are totally unavare of the published water data outputs. Respondents are even less avare of the sediment information outputs and sediment data usage is relatively low.

Question 12: Types of Water Quantity Data Interpretations Used

The types of water quantity data interpretations required or desired by respondents are shown in Figure 3. This figure shows that when respondents are given the choice, most will desire data interpretations. In most cases (43% of responses) the basic statistics are desired. High and low flow frequencies are desired by 29% followed closely by regional characteristics with 24%. A few of the respondents desire high and low flow estimates for small basins, groundwater data interpretations, unit hydrographs and rainfall/runoff relationships.

Question 13: Pay a Fee for Data/Information Provided

The answers to this question are presented in Appendix B of this report. But as mentioned earlier, two-thirds of respondents were willing to pay a fee for water related data.

Question 14: Adequacy of the Water Quantity Data Base

Figure 4 summarizes the response to the adequacy of the water quantity data base. The number of respondents answering this question were relatively few by comparison with responses received for the other questions asked in this questionnaire. However, most respondents felt that the station coverage (spatial) was for the most part inadequate. Most respondents are not familiar enough with the hydrometric network to comment on this question.

Question 15: Water related Projects and Activities

There were too few responses to this question to deduce any meaningfull conclusions.

FIGURE 2
USE OF WATER
DATA OUTPUTS

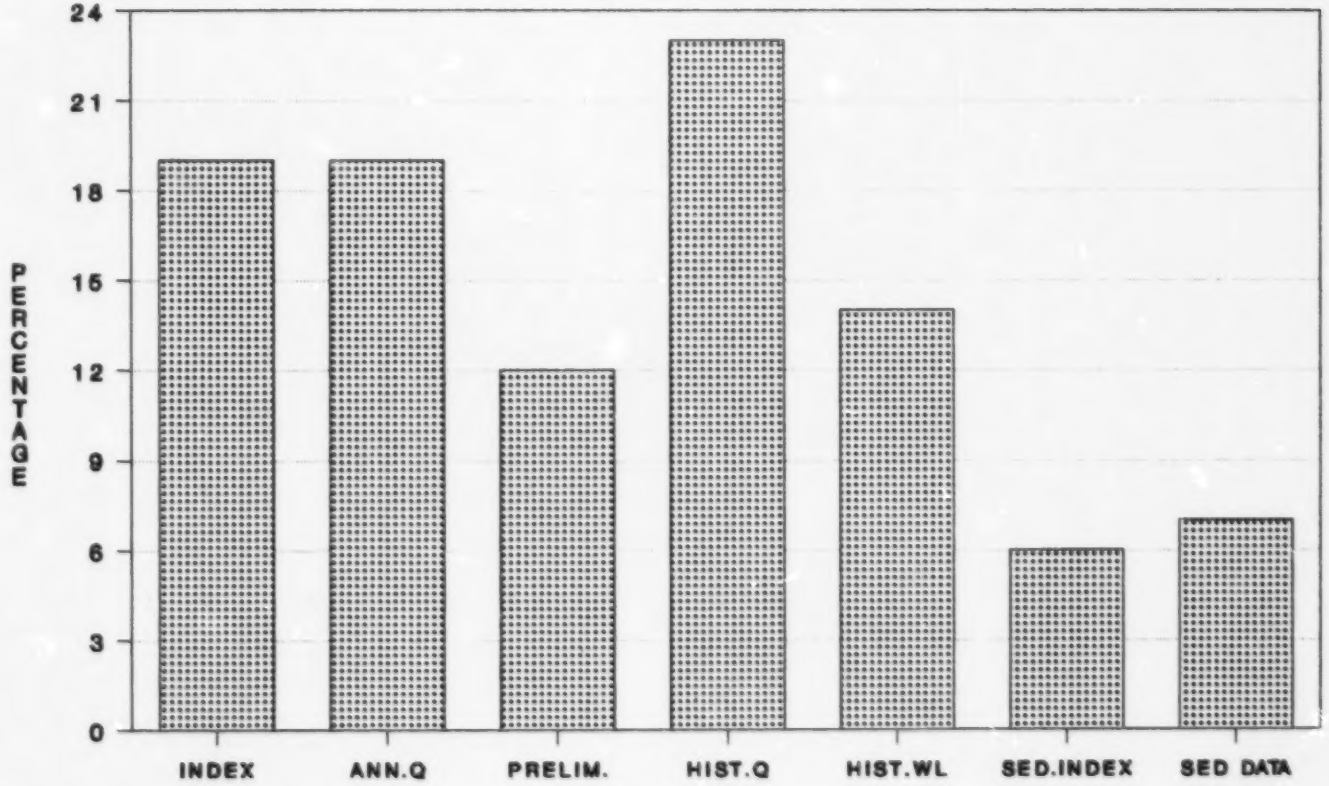


FIGURE 3
TYPES OF WATER QUANTITY DATA INTERPRETATIONS REQUIRED

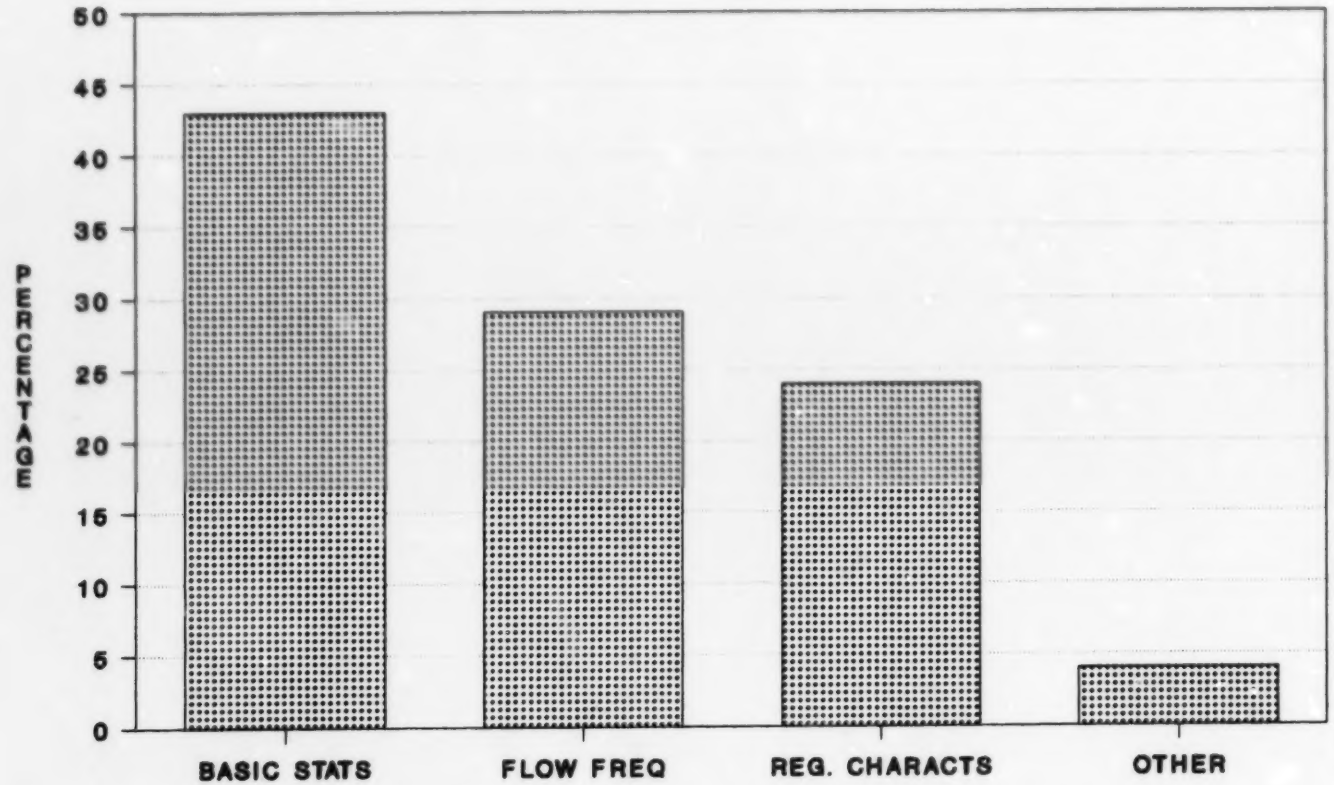
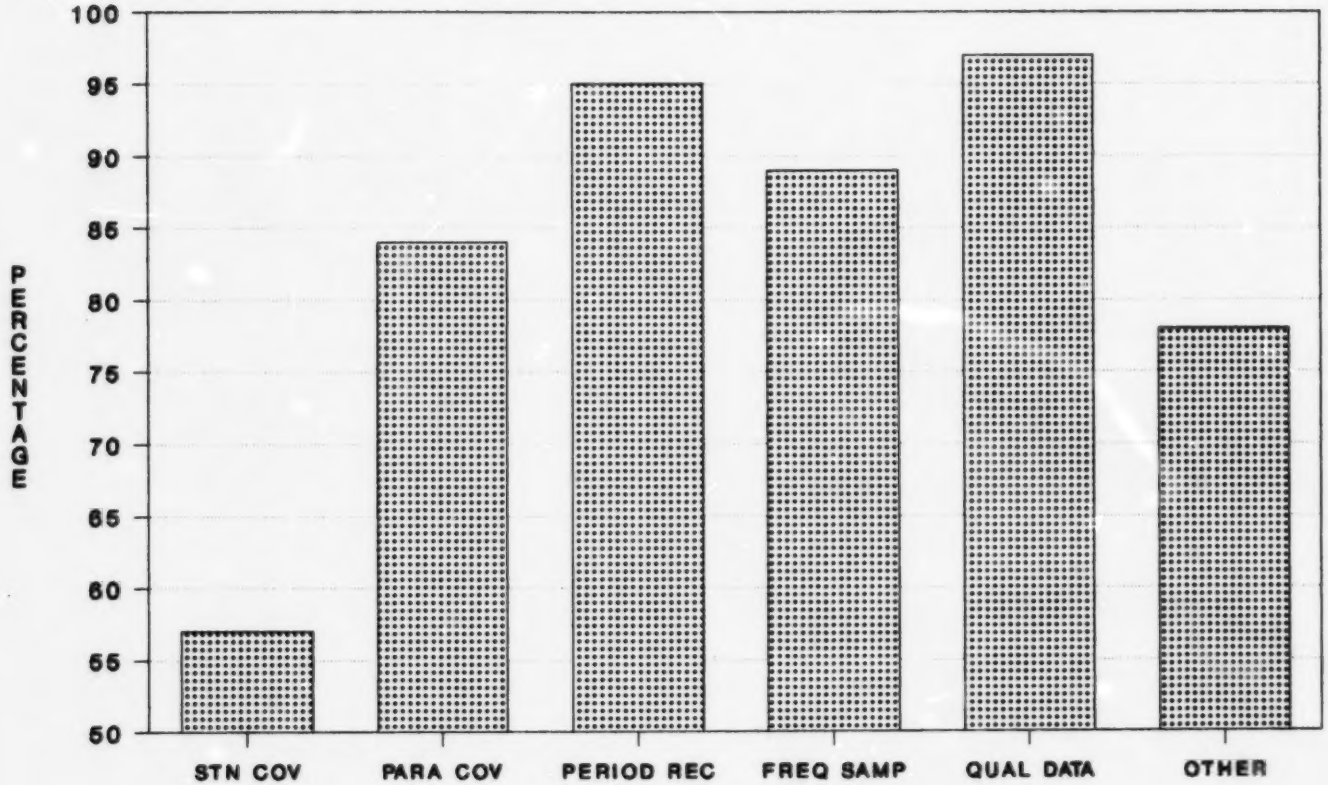


FIGURE 4
ADEQUACY OF THE WATER QUANTITY DATA BASE



Question 16: Dependency on Water Data

Figure 5 summarizes the responses to the respondents dependency on water quantity data. Most respondents are reluctant to answer this question definitively. Many state that the dependency is high (100%) depending on the project they are working on.

Question 17: Level of Accuracy of Data by Transfer Techniques Desired

Figure 6 summarizes the responses to the respondents' level of accuracy of data transfer techniques desired. Again, as with the previous question, many respondents find this difficult to answer. A considerable number have no comment. A number of respondents state that the answer to this question is variable depending on the project. The majority of the responses to this question wish to have data within $\pm$10 to $\pm$20 percent accuracy.

Questions 18 through 22:

There were too few responses to these questions to draw any significant conclusions.

V DISCUSSION

Generally, most of the respondents (75%) require surface water quantity data, either raw data or in interpreted format. Two-thirds of the respondents stated that they would be willing to pay a fee for the water information provided (either quantity, quality, groundwater data, etc.).

The survey results indicate that the types of data most required are surface water discharge and water level. The most frequent use of these data are for investigations, design and operation of municipal and residential water supplies, planning, research, quality assessment, storm drainage and industrial supply. Many of the projects for which these data are used are ongoing. Twenty-five percent are completely dependent on having this information while more than 35 percent are at least 25% dependent on it.

Response to questions concerning raw data formats and data interpretations desired indicate that most respondents preferred the historical summary, followed by the annual publication and surface water data reference index. The basic statistics wanted by the respondents are means and extremes which are presented in the historical summary. The level of accuracy of the interpretive data expected by the majority of the respondents is $\pm$10%.

In reply to the question concerning improvements to the water data base, most respondents indicated that more station coverage is needed, especially for small basins.

FIGURE 5
DEPENDENCY ON WATER DATA

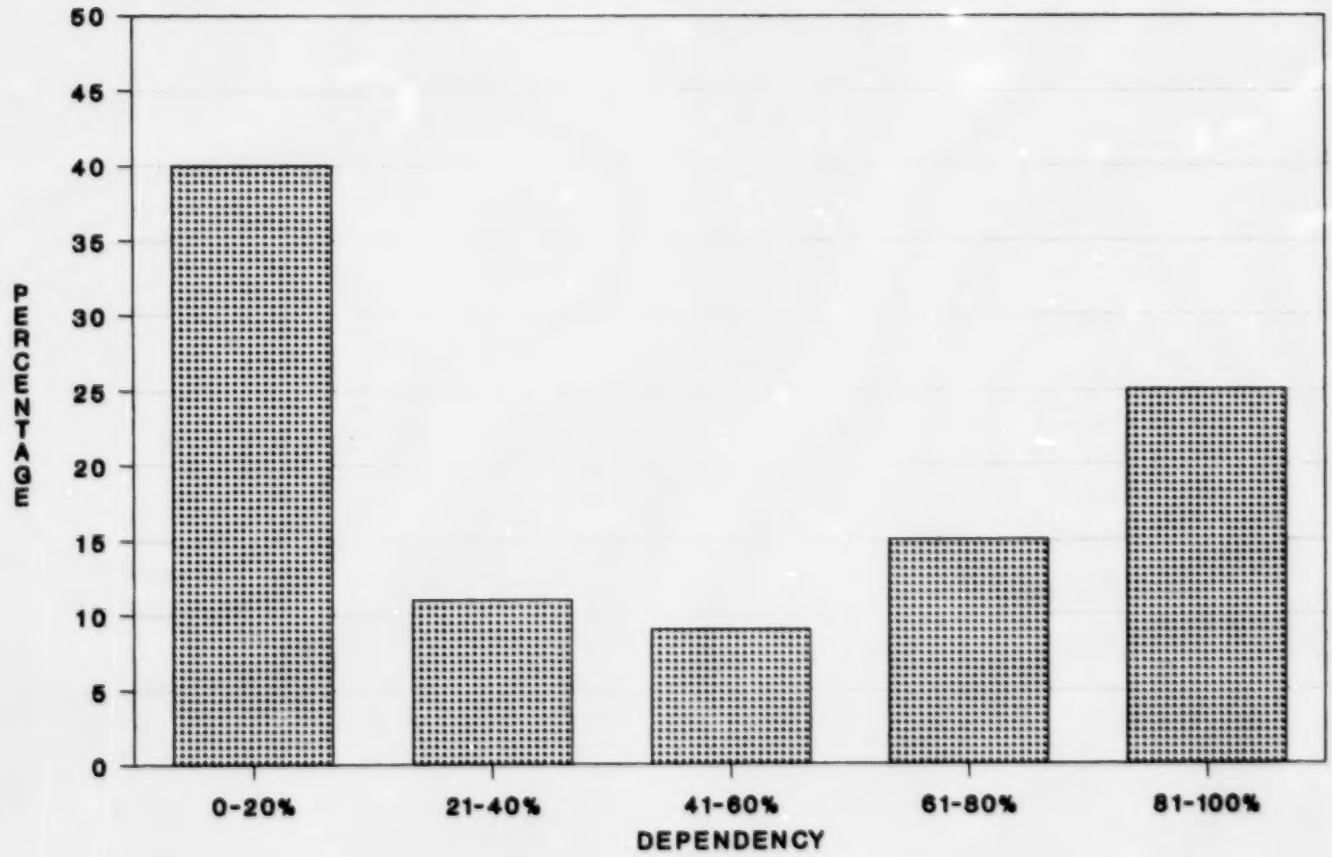
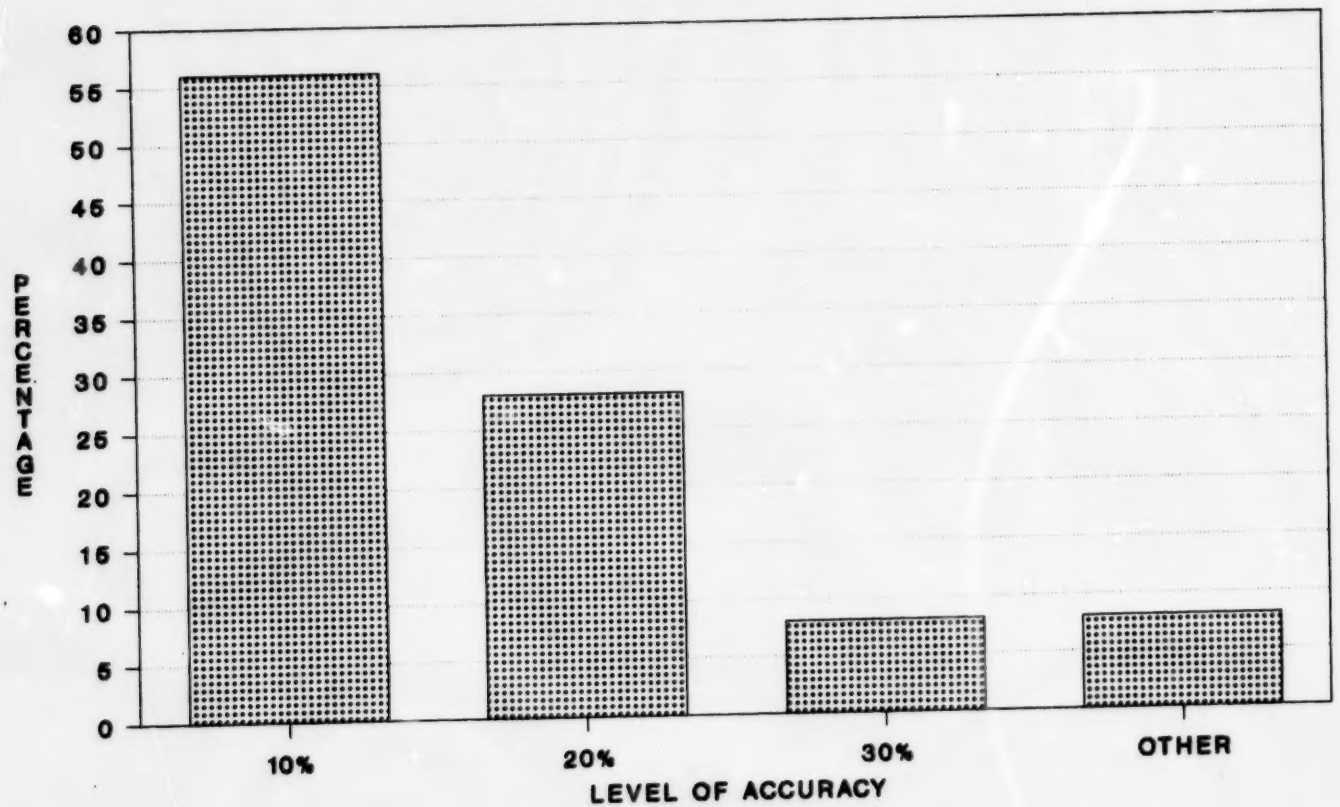


FIGURE 6
LEVEL OF ACCURACY OF DATA BY TRANSFER TECHNIQUES DESIRED



Many of the respondents had some difficulty with the design of the questionnaire form itself. Some of the questions asked were either not understood or confusing, especially to the some users (infrequent users) of hydrometric data. In future efforts some background information of the Water Resources Branch and a shorter, simpler form could avoid such confusion. Many potential users of hydrometric information contacted in the survey did not respond because they were not aware of the existence of this information and/or they did not know how to use the data. Appendix C presents a post-mortem of the questionnaire survey and some suggestions for improvements in future efforts.

The last question on the questionnaire asked whether the client wished to be contacted to discuss any questions, comments or inquiries he/she may have regarding surface water information. Of the 80 responses received 14 respondents stated that they wished to be contacted. The number of respondents that wished to be contacted by organization are as follows:

Federal	-	2
Provincial	-	1
Municipal	-	7
Consultant	-	2
Universities	-	2
Total		14

Telephone calls were conducted with the 14 respondents that wished to be contacted. One of the respondents was visited in person.

The findings of the telephone interviews are summarized as follows:

1) Municipal governments did not for the most part know about our services but wanted to be put on the mailing list for our publications. Most work needing hydrometric data is contracted out.

2) The consultants are well aware of WRB and our data products. They would like a voice into the location of sites when they are established. Also, they would like to see more gauges in small drainage basins, especially in urban areas.

3) The federal government departments contacted would like to see more integration of the various programs, e.g., water quality and water quantity.

4) The provincial government departments wanted to be added to our mailing list. The universities had general questions regarding the questionnaire.

As a result of the telephone interviews, none of the intervievees wished to be contacted in person. All of the concerns or questions were answered or addressed on the telephone.

It became clear during the course of this study that most users of surface water data are aware of WRB and their data products; canvassing new clients would basically be futile as new clients in Nova Scotia are non-existent. What users of WRB data are interested in are better products, e.g., data interpretations (statistics, tabular and graphical formats), brochures and fact sheets. Also, these users are willing to pay a fee for this information.

Also of interest was the number of responses from the municipal sector. The municipalities do not use WRB data directly but rather contract it out to consultants.

VI RECOMMENDATIONS

Some general recommendations can be made based on the above information.

It is recommended:

1) That the hard-copy publications of the WRB be continued as they are used by the majority of the respondents.

2) The feasibility of increasing station coverage, especially in small urban watersheds be examined.

3) The feasibility of integrating data bases, i.e., Atmospheric, Water Quality Branch, and Water Resources Branch, for the purpose of data retrieval and analyses be examined.

4) As the majority of surface water users in Nova Scotia are not sufficiently aware of the WRB data base, more resources should be directed to promotional formats on increasing the awareness of WRB information to clients, e.g., the production of brochures and fact sheets.

5) Promote a workshop on surface water data users' needs.

6) A follow-up survey in about five years time to determine whether user needs have changed.

VII REFERENCES

1. New Brunswick Hydrometric Network Evaluation, "Background Report No. 1, Assessment of User Needs", Environment Canada and New Brunswick Department of Municipal Affairs and Environment, April 1988.

2. Porter Dillon Ltd., "Summary Report on Findings of the User Survey Project", Halifax, N.S., April 1987.

APPENDIX A

COPY OF QUESTIONNAIRE FORM

ASSESSMENT OF WATER DATA USERS' NEEDS
PROVINCE OF NOVA SCOTIA

1. NAME _____

2. ORGANIZATION _____

3. ADDRESS _____
_____
_____

4. PHONE _____

5. Which of the following best categorize the water-related acitivities or concerns of your organization? (Check more than one if necessary.)

a. Water supply withdrawals _____
b. Research _____
c. Regional/Municipal Planning _____
d. Hydropower _____
e. Other Energy Development _____
f. Flood Forecasting and Management _____
g. Recreation _____
h. Wildlife Management _____
i. Forest Management _____
j. Fisheries _____
k. Agriculture _____
l. Mining _____
m. Manufacturing _____
n. Water Quantity Monitoring _____
o. Water Quality Monitoring _____
p. Environmental Assessment _____
q. Transportation/Navigation _____
r. Stream Alterations _____
s. Hydraulic Structures _____
t. Lowflow Augmentation _____
u. Waste Disposal _____
v. Public Health _____
w. Water Supply and Distribution _____
x. Education _____
y. Investigative Studies and Modelling _____
z. Hydrogeological Information _____
aa. Fire _____
bb. Groundwater Protection _____
cc. Hydraulic Impact _____
dd. Other (Please specify) _____
_____

6. Do you typically have requirements for?

a. Surface water quantity data _____
b. Surface water quality data _____
c. Groundwater quantity _____
d. Groundwater quality _____
e. Estuary quality _____
f. None of the above _____

7. How often do you require data? (Check one)

   a. Daily or almost daily _____
   b. Frequently (1-5 times per month) _____
   c. Rarely (1-2 times per year) _____
   d. Not at all _____

8. What type(s) of water quantity data do you normally require?

   a. Water level _____
   b. Streamflow (discharge, runoff) _____
   c. Flow Velocity _____
   d. Suspended Sediment _____
   e. Water Temperature _____
   f. Ice Thickness _____
   g. Snowpack _____
   h. Other (Specify) _____

9. Identify which water quality parameters are of interest to you. Please specify where possible.

a. Physical	b. Inorganic	c. Organic
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

c. Biological	e. Bacteriological
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

10. Your water data requirements are for the purpose of:

    a. Investigations _____
    b. Design _____
    c. Construction _____
    d. Operations _____
    e. All of the above _____

11. Are you familiar with and do you make use of the following water quantity data formats?

	Familiar		Make use of	
	Yes	No	Yes	No
a. Surface Water Data Reference Index	___	___	___	___
b. Annual Surface Water Data				
(i) Annual Publication	___	___	___	___
(ii) Diskettes (5 1/4", 3 1/2")	___	___	___	___
(iii) Computer tape	___	___	___	___
(iv) CD-ROM	___	___	___	___
c. Surface Water Data Preliminary Printout (year to date)	___	___	___	___
d. Historical Streamflow Summary	___	___	___	___
e. Historical Water Level Summary	___	___	___	___
f. Sediment Data Reference Index	___	___	___	___
g. Sediment Data Atlantic Provinces	___	___	___	___

12. What type(s) of water quant[illegible] data interpretations do you or might you want provided?

a. Basic statistics such as annual, monthly and daily means and their variability _____
b. Flow frequency and duration estimates _____
c. Estimates of regional flow characteristics _____
d. Other (Please specify) _____
_____

13. Would you consider it reasonable to be charged for the water data/information provided?

a. Yes ____ b. No ____

If no, state reason? _____
_____

If yes, the charge should be:

Total cost _____ Flat fee _____
Nominal Fee _____ Don't know _____

Reasons: _____
_____
_____

14. Do you feel the present water data base requires improvement in any of the following aspects?

a. Station coverage _____
b. Parameter coverage _____
c. Period of record _____
d. Frequency of sampling _____
e. Quality of data _____
f. Other (Please specify) _____

Please provide specifics for any improvements noted above:

_____
_____
_____
_____

15. Please list current and future projects or activities of your organization which are water-related, identifying the location of the activity and the water body utilized or affected.

If water data is (or could be) required for the activity, please also identify the type(s) of data required and the purpose(s) for which it is needed: (Use back of page for additional space if necessary)

Project/ Activity	Water body/ Location	Type(s) and Frequency of Data Required (e.g. Daily Streamflow)	Purpose(s) (e.g. Hydraulic Design)
A. Present Projects/Activities			
B. Future Projects/Activities			

16. In per cent, please approximate the extent to which you feel the projects/activities you identified are dependant on water data being provided?

    a. _____ per cent
    b. Specific reasons (if any):_____
    _____
    _____

17. If water quantity data for the location(s) you identified were generated by data transfer techniques, what level of accuracy would be acceptable?

    ± 10% _____
    ± 20% _____
    ± 30% _____
    Other (specify)_____

18. Does your organization use or provide water on a water supply basis?

    Yes ____ No _____

19. If yes, is there monitoring of?

    a) quantity of water used _____
    b) quantity of water supplied _____
    c) quality of water _____

20. Has the amounts of water you use or provide increased over the last few years?

    a) Yes _____
    b) No _____
    c) Remained Stable _____

21. What types of pricing structure is in place for the water used/provided?

    a) No charge _____
    b) Flat Rate _____
    c) Consumption Basis _____
    d) Other _____
    _____

22. Do you have any other comments on this questionnaire or regarding your water data needs?

_____
_____
_____
_____
_____

Thank you for participating in this survey.

Do you wish to have a representative of our department contact you to discuss any questions, comments or inquiries? Yes ____ No ____

APPENDIX B

RESPONSES TO REQUIREMENTS FOR DATA

APPENDIX B
RESPONSES TO REQUIREMENTS FOR DATA

Government

Name	Sector	Primary Activity	Require Surface Water Info?		Pay a fee
			Raw Data	Interpreted	
Cleary	Municipal	Public Works	no	no	yes
Sherrard	Municipal	--	yes	no	yes
MacDonald,J.R.	Federal	Environment	yes	yes	yes
Sheppard	Municipal	--	yes	yes	yes
Guilcher	Federal	Environment	yes	yes	no
McMillan	Municipal	--	yes	yes	yes
Wheelhouse	Municipal	Water Commission	yes	no	no
Cameron	Provincial	Environment	yes	yes	--
Gibbs	Federal	Parks Canada	yes	yes	yes
MacDonald, H.	Municipal	Clerk/Treasurer	yes	yes	yes
Purves	Federal	Public Works	yes	yes	yes
MacDonald, D.	Federal	Public Works	yes	no	yes
Clarke	Federal	Environment	yes	no	no
Fougere	Municipal	Engineering	yes	yes	yes
Symonds	Municipal	--	no	no	no
Wadden	Municipal	--	yes	yes	yes
Fry	Municipal	--	no	no	--
Colborne	Municipal	--	yes	yes	yes
Gates	Municipal	Water Commission	yes	yes	yes
Cook	Federal	Energy, Mines & Res.	no	no	--
Casey	Provincial	Health & Fitness	yes	yes	yes
Parrett	Municipal	--	yes	yes	no
Jones, E.	Municipal	--	no	yes	yes
Chiasson	Municipal	--	yes	yes	yes
Bennett	Municipal	--	no	no	yes
MacDougall	Municipal	--	yes	no	--
--	Federal	Parks (Koji)	yes	yes	no
Lucia	Municipal	Eng. & Works	yes	yes	yes
Cutting	Federal	Fisheries & Oceans	yes	yes	yes
MacDonald, K.	Municipal	City Engineer	yes	yes	yes
Muzzatti	Federal	Coast Guard, Eng	yes	yes	yes
MacLean	Municipal	Public Works	yes	no	yes
Beauchamp	Federal	Environment	yes	yes	yes
O'Neill	Federal	Environment	no	no	no
--	Municipal	Water Commission	yes	yes	yes
Morrison	Municipal	Water Commission	no	no	no
Jansen, H.	Federal	Fisheries & Oceans	yes	yes	yes
White, W.	Federal	Fisheries & Oceans	yes	yes	yes
Armstrong, L.	Municipal	Water Commission	yes	no	no
Lenihan, B.	Municipal	Water Management	yes	yes	yes
McCormack, H.	Municipal	Water Commission	yes	no	no
Jess, C.	Municipal	Water Commission	yes	yes	yes
Veinot, T.	Municipal	Water Management	yes	yes	yes
Delorey, F.	Provincial	Water Management	yes	yes	no
Jenkins, G.	Federal	Public Works (Parks)	no	no	--
Leadbetter, J.	Federal	Fisheries & Oceans	yes	yes	yes
MacLean, B.	Municipal	Water Utility	yes	yes	yes
McNeil, P.	Municipal	Water Commission	yes	yes	yes
Johnson, P.	Municipal	Water Management	yes	yes	yes
Knight, S.	Federal	Forestry	yes	no	--
Kerekes, J.	Federal	Wildlife	yes	yes	no
Payne, F.	Provincial	Wildlife	yes	yes	no

(continued)

APPENDIX B CONTINUED

Engineering and Consultant Firms

Name	Company	Require Surface Water Info?		Pay a fee
		Raw Data	Interpreted	
McCabe	H. Bruce McCabe & Assoc. Eng.	yes	yes	yes
Baechler	Nolan, Davis & Assoc.	yes	yes	yes
Jenkins	D.S. Jenkins & Assoc.	yes	yes	yes
Bernard	Jacques, Whitford & Assoc.	yes	yes	yes
Pertus	C.J. MacLellan & Assoc. Ltd.	yes	yes	yes
King	C.A. Campbell Consultants Ltd.	yes	yes	yes
Noble	CBCL Limited	yes	yes	yes
--	Alderney Consultants Limited	yes	yes	yes
Skinner	Neill and Gunter (NS) Ltd.	yes	no	yes
Seamone	Hiltz & Seamone Co. Ltd.	yes	yes	yes
--	UMA Engineering Ltd.	yes	yes	yes
Gridley, N.	Porter Dillon Ltd.	yes	yes	no
--	Vaughan Engineering Associates	yes	yes	yes
MacDonald, H.	Acres International Ltd.	yes	yes	yes
Wootton, R.	Nolan Davis & Associates	yes	yes	yes
McCrea, J.	Monenco Maritimes Ltd.	yes	yes	yes
Thompson, W.	Franklin Burkes (Law Firm)	yes	no	yes
Knox, D.	Interprovincial Eng. Ltd.	yes	yes	yes

(continued)

APPENDIX B CONTINUED

Universities and Educational Institutions

Name	School or University	Require Surface Water Info?		Pay a fee
		Raw Data	Interpreted	
Woolnough	Geographic Sciences, NSLSI	yes	yes	yes
Polegato	Unic. College of Cape Breton	yes	yes	no
Hart	TUNS	yes	yes	no
Semple	Dalhousie University	yes	yes	yes

(continued)

APPENDIX B CONCLUDED

OTHERS

Name	Company	Require Surface Water Info?		Pay a fee
		Raw Data	Interpreted	
Haley	NS Power Corp.	yes	yes	yes
Royal	Ducks Unlimited	yes	no	no
--	Bowater Mersey Paper Co.	no	no	no
Mandaville	Sackville R. Adv. Bo.	yes	yes	no
Unknown*	--	--	--	--
Unknown*	--	no	no	no

Note:

* No name or address stated.
-- No response to question.
Raw data requirement is based on question 6 and 8 of the questionnaire.
Interpreted data requirement is based on question 12 of the questionnaire.
Pay a fee is based on question 13 of the questionnaire.

APPENDIX C

POST-MORTEM

APPENDIX C

POST-MORTEM

The conduct of the user/client contact has provided insight into the response of the various individuals to a questionnaire survey of this type and permits the development of some constructive criticism for any future survey of this type. Some of the main comments or concerns that the contacts expressed regarding the questionnaire are as follows:

(1) - Many respondents had some difficulty with the design of the questionnaire form itself.

- Some of the questions were found to be confusing to the respondents, e.g., questions 11, 14, 15 and 16.

- Question 11 allows only some respondents to answer because many clients may only be vaguely familiar with the data products.

- Very few respondents could respond in detail to question 14. Some additional interpretive information would probably have been helpful in this case.

- Question 15 (current and future projects) demands a detailed response, yet most respondents are unwilling or unable to provide such detailed information.

- Question 16 was extremely difficult to answer for most respondents; having indicated involvement with water related projects, why wouldn't they depend on water data!

- A future questionnaire form should be designed to be more concise and deal only with the pertinent questions necessary to answer the intented purpose and scope of the study.

(2) - Information received back from the respondents should be stored in a spreedsheet (LOTUS) format for ease of data manipulation.

(3) - The return date should be clearly stated on the questionnaire form.

(4) - Insert an identifier on each questionnaire form so that the responses can be linked to their proper name and address.